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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/743,188

12/23/2003

Shinji Miyata

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01/10/2005

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EXAMINER

TRA, ANH QUAN

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/743,188	Applicant(s) MIYATA ET AL.	
	Examiner Quan Tra	Art Unit 2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) 28-60 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-27 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 11 is/are rejected.
- 7) ☐ Claim(s) 5-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/26/04&9/21/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention: group I, claims 1-27, corresponding to figures 4-12; group II, claims 28-34, corresponding to figures 31A and 31B; group III, claims 35-44, corresponding to figures 37-52; and group IV, claims 45-60, corresponding to figures 53-59.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there is no generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the

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examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Rhonda L. Barton on December 22, 2004 a provisional election was made without traverse to prosecute the invention of group I, claims 1-

27. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 28-60 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

4. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujiwara (US 2002/0171457) (Applicant's submitted IDS).

As to claims 1 and 11, Fujiwara discloses in figure 9 a spread spectrum clock generation circuit comprising: a frequency phase comparator (23) for detecting a difference in phase between a reference clock (Fin) and a generated clock (Fout); a charge pump (circuit, not shown in circuit 23. The circuit figure 7 will not work without the charge pump) for generating a charge/discharge signal in accordance with the difference in phase detected by the frequency phase comparator; a loop-filter (24) for generating a differential signal in accordance with the charge signal; a spread spectrum modulation circuit (27 and 28) for generating a spread spectrum modulation signal by modulating the differential signal so that the differential signal changes with an amplitude (inherent), which is smaller than that of the differential signal, and with a spread spectrum modulation period which is sufficiently longer than that of the generated clock (the frequency of signal outputted by circuit 28 is lower than the frequency of the clock signal. Therefore, the period of the signal generated by circuit 28 is longer than the period of the clock signal); and a clock generator (25) for generating the generated clock with a frequency in accordance with the spread spectrum modulation signal, wherein the spread spectrum modulation

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period of the spread spectrum modulation signal changes so as to have multiple different periods (figures 5A-5C). As further called in for claim 11, figures 5A-C shows that the spread spectrum modulation signal has a waveform of which signal value changes in straight lines and a slope of change of the signal value changes in each spread spectrum modulation period.

As to claim 2, figures 5A-5C show that the spread spectrum modulation signal has a triangular waveform of a constant amplitude and changes the period for each period in order.

As to claim 3, figure 9 shows that the clock generator is a voltage control oscillator.

As to claim 4, figure 10 shows that the spread spectrum modulation circuit comprises an analog modulator for generating a spread spectrum analog voltage signal the period of which changes so as to take multiple different periods, and a voltage addition circuit for adding the spread spectrum analog voltage signal to the differential signal.

Allowable Subject Matter

7. Claims 5-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 12-27 are allowed.

Claim 5 would be allowable because the prior art fails to teach or suggest that the analog modulator comprises a plurality of different capacitors, a plurality of switches for selecting one of the plurality of different capacitors, a constant current source for supplying a constant current to the selected capacitor or making the constant current flow out of the selected capacitor, a hysteresis comparator for detecting the fact that the voltage of the selected capacitor reaches first and second predetermined voltages and a switch control circuit for switching the selected

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plurality of switches when the hysteresis comparator detects the fact that the first and second predetermined voltages are reached.

Claims 6 and 9 would be allowable because the prior art fails to teach or suggest that the spread spectrum modulation circuit comprises a digital control circuit for generating an output code the period of which changes so as to take multiple different periods, a voltage digital-to-analog conversion circuit for generating a spread spectrum voltage signal in accordance with the output code, and a voltage addition circuit for adding the spread spectrum voltage signal to the differential signal.

Claims 7, 8 and 10 would be allowable because the prior art fails to teach or suggest a voltage-current conversion circuit for converting the differential signal, which is a voltage signal, into a differential current signal is further comprised, the clock generator is a current control oscillator, and the spread spectrum modulation circuit comprises a digital control circuit for generating an output code the period of which changes so as to have multiple different periods and a current variable circuit provided between the voltage-current conversion circuit and the current control oscillator and which generates a spread spectrum current modulation signal by modulating the differential current signal in accordance with the output code.

Claims 12-27 are allowable because the prior art fails to teach or suggest that the spread spectrum modulation signal has a waveform in which a local maximum and/or a local minimum, of a signal value, change.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are cited as interest because they show some circuits analogous to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 571-272-1755. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Quan Tra
Primary Examiner

January 5, 2005